Confidential Disclosure Record of Invention
for Consideration under the Patent or Trade Secret Laws

CE # 1058

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OIPE JC32
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PATENT & TRADEMARK OFFICE

EXHIBIT
A

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2 SUBJECT MATTER OF IDEA (SEE SHEETS 2 AND 3 FOR FULL DESCRIPTION) [redacted]

High barrier linerless closure and method of manufacturing

INTELLECTUAL PROPERTY SECTION

3 DATE CONCEIVED (WHEN IDEA WAS FIRST THOUGHT OF) [redacted]

4 DATE IDEA WAS FIRST DISCLOSED AND TO WHOM [redacted] reviewed concept with David C. Beckmann and Raj Krishna, both O-I

5 DATE OF FIRST DRAWING [redacted] WHERE IS IT? Technical Notebook 9142 pages 7, 15, 16 & 17

6 DATE OF FIRST WRITTEN DESCRIPTION OF IDEA [redacted]

WHERE IS IT? Technical Notebook 9142 pages 7, 15, 16 & 17

7 HAS IDEA BEEN TESTED ON AN EXPERIMENTAL BASIS? Yes, 28mm ODS Apollo Closures with 0.0015 LCP disc.

STATE WHEN, WHERE AND RESULTS [redacted] Closures were molded and LCP liner inserted at AWM in Zurich Switzerland. Closures were tested at PS&E in USA for CO2 permiation. Result for test closure was 0.015 cc-CO2/day, Std. ODS was 0.0545 cc-CO2/day

8 HAS IDEA BEEN DISCLOSED IN ANY MANNER WHATSOEVER TO PERSONS OUTSIDE THE COMPANY? Yes

IF SO, PLEASE RECITE CIRCUMSTANCES Both Miller Brewery and Anheuser-Busch Have reviewed the concept and seen the test resuls.

9 HAS IDEA BEEN UTILIZED? No

RECEIVED
AUG 19 2004
TECHNOLOGY CENTER R3700

STATE WHEN, WHERE AND RESULTS

10 SUBMITTER(S) SIGNATURE (S) DATE [redacted]

DATE [redacted]

SIGNED AT (CITY) TOLEDO (STATE) OHIO

(CITY) (STATE)

WITNESSED AND UNDERSTOOD BY DATE [redacted]

DATE [redacted]

NOTE: Unless all questions are answered fully and Confidential Disclosure Record signed, witnessed and dated, same must be returned to you for completion.

DESCRIPTION OF IDEA

PURPOSE OF IDEA Some liquid products such as Beer and 100% fruit juices are very sensitive to oxygen and in the case of Beer, it is sensitive to CO2 losses as well. This invention deals with the addition of a very high barrier material such as LCP or EVOH into the inside of a linerless closure. Having the barrier close to the product increases its effectiveness by reducing the amount of non-barrier material exposed in areas that would transmit the gases into or out of the package.

ADVANTAGES OVER PRIOR ART - STATE GENERALLY HOW IDEA IMPROVES OVER PRIOR ART DEVICES, APPARATUS, METHODS, ARTICLES OR COMPOSITION.

(see attached sheets)

1. Linerless closures are gernally less expensive than lined closures.
2. Lining materials such as EVA are generly more permible than closure shell materials like polythylene (linerless closures are a better barrier than lined)
3. Inserting a high barrier material in the top of a linerless closure contols cost and increase barrier

NOVELTY - STATE GENERALLY WHAT FEATURES OF IDEA YOU CONSIDER TO BE NEW. THIS CAN BE OVERALL COMBINATION AND/OR ONE OR MORE ELEMENTS.

The closure it self is showing to be as good as the ARO closure with a Triseal EVOH liner in it. This has been the benck mark in the Beer industry.

1. Use of high barrier materials like LCP's or EVOH's to inhance the barrier properties of linerless closures
2. Use of the linerless feature of the ODS linerless seal to hold the barrier disc in place
3. The insertion of the disc after molding of the closure
4. The use of robots to place disc inside of mold before molding and shooting the polymer around it.

DRAWINGS - LIST BELOW ALL GRAPHIC ILLUSTRATIONS (I.E., DRAWINGS, PHOTOS, ETC.) REPORTS, AND/OR NOTEBOOKS RELATING TO IDEA, GIVING IDENTIFYING MARKING AND LOCATION OF EACH.

(see attached sheets)

1. Presentation slide labeled High Temperature Sealing System" - shows LCP barrier disc inside of ODS linerless feature
2. Technical Notebook 9142 pages 7, 15, 16 & 17 - shows insert molding of LCP disc into closure
3. Punch and insert disc after molding

DETAILED DESCRIPTION OF IDEA

DESCRIBE BELOW THE IDEA AND ITS OPERATIION. WHERE APPROPRIATE ATTACH AND REFER TO PERTINENT SKETCHES, DRAWINGS, GRAPHS, ETC., WITH THE AID OF REFERENCE CHARACTERS. WHERE THE IDEA INVOLVES CHEMICAL REACTIONS GIVE RANGES, RATIO OF REACTANTS, TEMPERATURES, PRESSURE, TIMES OR ANY OTHER PERTINENT PROCESS VARIABLES.

(see attached)

The concept is the add a high barrier material such as LCP or EVOH disc into a linerless closure such as the CAPS-UK closure with a ODS sealing system and to use the deformation of the seal after application to the container to hold the barrier disc in place.

Testing has shown that a 0.0015 thick LCP disc in a CAPS closure can improve the CO2 barrier by about 3.5 times that of the normal CAPS closure

Two options for disc placement are shown on the attached sheets. Option (1) shows the barrier disc being placed into an injection mold by a robot during the cap eject cycle. The current tools used for the production of CAPS closures use an air assis to remove the closures with out deforming the top panel during core extraction. This air assis could also be used to pull a vaccum to hold the disc in place while the mold is injected with plastic. This process should have little impact on cycle time of molding the closures. Option (2) shows the barrier disc being placed into the ODS feature after the is molded. Equipment such as used for lining closures could be used for this process. A roll of barrier material would be fed into a punch and die set were the material would be punched out and an inserting tool would place the disc beheind the ODS feature. Vaccum would most likely be needed to hold the disc on to the insertion tool while it is placed into location.